ARM Manus Research Station

Site Visit 0310M Report

Visit Duration: 15 October to 24 2003

Papau New Guinea, Manus

SITE: **Manus**

SV 0310M (TSI)

Team Members:

Rex Pearson, Australian BOM
Troy Culgan, Australian BOM
Elijah Garetz, PNG NWS

Dates of Visit
From 15 October to 24 October 2003

Requirements

WSI	Coolant, Anti-corrosion & dehumidifier cartridges (What is to happen with the 7 old dehumidifier cartridges on
Ceilometer	DPS52 power supply board required - battery charge circuit

Priority	System	Date (dd/Month)	Service Time in Hours	Tasks/Description of Work/Process For each priority item insert new line(row) for each date/time entry
1	**TSI**			**Repair/Install**
		15-Oct	0.50	Open box of TSI and assemble
		16-Oct	5.00	Commenced fault finding. Main 110/12 voltpower supply faulty.The 12 volt power supply is now functioning correctly but the 5 volt supply is not. There are two Lambda switching regulators on the sub power supply board. These have a control pin that will turn them on and off. I need the manufacturers to tell me what controls the modules so I can get the 5 volt rail back up. As this is occurring on both power supplies and with both computers I tend to thing it is going to be something relatively simple as all units cannot be faulty. A schematic of the power sub system would be great if they will assist
		17-Oct	3.00	Continued fault finding, found power supply causing problems. Have bypassed the 110/12 volt supply and have the 5 volt power light up.

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		18-Oct	9.00	Continued fault finding. Had the unit up at one stage and displaying a picture but the ethernet connection has now stopped. Continuing with ethernet fault
		19-Oct	8.00	Have got ethernet connectivity working again, and able to control the TSI from the console terminal. The web server is working but it appears there is a problem in the java scripting in the unit. Can YES remotely log into the unit and diag now that it is on line ? IP address is 198.252.143.9.
		23-Oct	13.00	Continued work on TSI with additional info Yankee supplied. Found camera was working ok and voltage to camera was normal. Checked connectivity to the ethernet port on the camera ethernet card. Checked internal cable from ethernet card to connector on computer unit and cables to camera unit. Replaced all RJ45 connectors used in the camera subsystem. Got the camera going and was able to get pictures. I gathered good info in doing this and will document this for SGP etc. When we got the unit going the dome shading was not correct. Looking at the rotation bearing in the setup screen it was apparent the readings from the encoder were not getting to the computer. Repunched the RJ11 connectors connecting the encoder to the RS232 converter assembly and replaced the motor drive board in the power supply. The unit started tracking and was in approximately the correct position. A rough alignment was completed. Would be useful if Yankee could check the unit again tomorrow and see what they say about its operation. There appears to be a small amount of hunting on the mirror, this may be something they can advise
2	H2GEN			**Replace electrolyser cell**
		16-Oct	20.00	Electrolyser cell replaced. Maximum generation current was only 150 amps. Checked and found faulty rectifier diode and replaced. Current now normal - checked overload and overcurrent trip points

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3	H2GEN			**Electrolyser routine maintenance**
		17-Oct	12.00	Commenced electrolyser maintenance
		18-Oct	8.00	Completed electrolyser maintenance and RBL maintenance. Observers successfully launched a balloon after the end of maintenance. Hymson and James have been instructed in the use of the RBL bleed kit
4	MWR			**Replace blower/heater and teflon shield**
		18-Oct	2.00	Replaced teflon cover. Spare fan assembly on site is an old type serial number 5A. It does not appear to have been refurbished so was not replaced
5	DS			**DS-APC UPS soft shutdown software installation?**
		17-Oct	3.00	Shut down data system, change power wiring on APC switch to match Nauru - turn data system back on. Fault find why APC switch does not communicate on the network - changed switch port and all functioning correctly - Reed will advise Eagan
		21-Oct	2.50	Tested shutdown software and start up procedures with Ron Reed. Site system shutdown now functioning correctly. It appears DS1 may not have started correctly - there is no DSView page and the DMF is not showing data for the site. Have left so SGP OPS can check out what has happened.
6	GENSET			**Jury rig GENSET radiator, calibrate transfer switch, and check fuel tank for need to paint.**
		21-Oct	0.25	Radiator arrived at site - ready for install. Francis checked with Lae - apparently the mechanic is not due to arrive until next week. Do you want us to check out if we can replace the radiator before we leave ? Fuel tanks are ok - no requirement to rust treat at this time.
		22-Oct	0.75	Genset checks completed - voltage dropout checked. Will discuss with Nauru tomorrow to check the settings there.

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7	TRK			**K&Z trackers - automate time setting of solar tracker(ECR00320)?**
		19-Oct	0.00	Software not implemented
8	**CAL**			**COM Line - install spare skyrad/calibration line**
		22-Oct	1.00	Checked out fiber run in preparation for installation of bit drivers
9	**DS**			**Install Drac cards in NFS and Collector servers**
		17-Oct	2.00	Drac cards installed and system tested
10	**H2GEN**			**Install new water pump for well**
		21-Oct	0.50	Checked with Dick Pearse - the well piping will not arrive before we leave - it is still in Lae awaiting shipment.
11	**H2GEN**			**Install piping to connect catchment tanks at electrolyser(John did not have all the parts to do this)**
		16-Oct	0.50	Connected water pipes between the tanks using existing components, tested for water leaks and balanced the tank levels. We will train Observers on the functionality
		18-Oct	0.50	Rectified small drip that had occurred in the old piping - replaced the gland seal.
		19-Oct	1.50	Additional electrolyser training with Elijah
12	**H2GEN**			**Inspect H2 cylinders in balloon barn and hook up for use before they get old or empty cylinders and send back.**
		20-Oct	3.00	Test H2 cylinders for residual gas - Will arrange with Pearse for them to be sent back
13	**SKYRAD**			**Engage a contractor to repair or replace the main Skyrad Stand steps - they are really wobbly**
		20-Oct	3.00	Timber purchased and delivered to site
		21-Oct	5.00	Remove old steps. Repair and add additional bracing to
		22-Oct	6.00	Complete step assembly, bolt steps into place. Construct safety rail around edge of the skyrad stand.

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14	VANS			**Engage a contractor to replace wood on platform between I and D Vans. Local wood should be fine as the planks in place now lasted 7 years**
		20-Oct	3.00	Timber purchased and delivered to site
		21-Oct	8.00	Remove old timber from frame work, cleanup frame and install new timber onto frame. Ready to lift back into position between D and I van.
		22-Oct	2.00	Move plinth into place and construct step assembly for entry into D Van.
15	SKYRAD			**Install an additional tread atop the spare stand steps -**
		20-Oct	0.00	Timber purchased and delivered to site
		22-Oct	2.00	Add additional top platform to fill gap in steps.
16	MMCR			**Check antenna for corrosion similar to that on Nauru**
		15-Oct	1hr	Antenna Checked for corrision.
17	COMM			**Deliver Excel instruction Manual to Robert Thompson in**
		14-Oct	N/A	Delivered
18	VANS			**Replace smoke/CO alarm batteries**
		23-Oct	1.00	Completed
19	WSI			**Replace dehumidifier Anti-corrosion cartridge, coolant**
		20-Oct	1.00	Cartridge replaced and coolant system checked. No spare coolant on site.
20	OTHER			**Rex train the Manus Observers on the shipping process notification.**
		22-Oct	2.00	Francis and Alex trained on doing the shipping forms
21	OTHER			**Ship back those AC Unit mounting brackets mistaken shipped to Manus, but intended for Darwin.**
		18-Oct	0.50	Check with Dick Pearse - goods have not arrived and most likely will not arrived within the next 2 weeks due to a shipping delay in Lae

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22	OTHER			**Ship the following to SGP - originally reported by John Glowacki on 21Aug03 "During the search we came across a plastic case for a Precision thermometer type 4600 (ser # 95H100180 OMS tag 1200173). The only things in the case were a temperature probe for the 4600, TRH probe HMP 41/45 ser # W2710037 and a HMH45. No indicator unit."**
		18-Oct	1.00	Located units and will pack for shipping
23	MMCR			**Replace DSP and integrator card**
		15-Oct	1.50	Replaced cards and restored MMCR to operation
24	AWS			**Check humidity fault - replace humidity probe and turn reading back on**
		15-Oct	0.50	Checked probe and connections - temporary probe replacement to test unit
		19-Oct	0.75	Replaced probe with spare unit and reset AWS display will monitor over the next few days. TRH probe connector needs to be replaced as it has had water inside the backshell
		20-Oct	0.50	Checked unit again today and all was working ok. Replacement connector will be purchased and installed in a future visit. The existing connector has been sealed to prevent further water ingress.
		22-Oct	1.00	Install external mouse - easier for observers to use than the pointer in the laptop.
		22-Oct	1.00	Familiarization on AWS with Elijah
25	Satphone			**Check satphone connection to SDS**
		16-Oct	1.00	Checked satphone parameters and reconnected console cable to the satphone. The console cable is currently connected to the aux port of the 2511 - can Eagan confirm connectivity
		17-Oct	0.50	Eagan advised all functioning - tidy up of wiring
26	SDS			**Install interface card in Cisco router**

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		16-Oct	0.50	Removed power from the Cisco router and installed the FXS interface card, powered up router and confirmed site connectivity
		17-Oct	1.00	Eagan advised number plan. Checked connectivity between sites and installed the phone into the E Van
		18-Oct	0.25	Confirmed US connectivity on VoIP circuit
27	OTHER			**Locate Spare MPL window and ship to Darwin**
		18-Oct	1.00	Searched site for window - was unable to locate one.
28	H2GEN			**Label and then disable un-marked Electrolyser Valve**
		20-Oct	1.00	Bracket fashioned for the valve handle to prevent accidental operation of the valve. It now required a physical operation - removal of 2 screws to move the valve handle to the open position. We have noted the controls and will have traffolite labels made to show what each valve does. They will be installed on a future trip.
29	Ceilometer	18-Oct	1.00	Checked battery alarm. Recharged battery externally and
		20-Oct	2.00	Ceilometer power supply card has burning on the backside of the circuit board around the battery charging circuit. A replacement DPS52 board is required.
				If this is the same board as is used in Darwin, the Darwin board could be bought back to Manus in November and used to replace the Manus unit. This would mean the Darwin ceilometer would be down. The Manus unit can be put into Darwin as this is not as critical (in replacement terms) and the replacement unit sent to Darwin. (This would mean the Darwin unit would be down for 2 weeks)
30	Maintenance			**Refer maintenance task list - ongoing**
		23-Oct	2.00	Completed refer maintenance task sheet
31	SV0312M cal			**Check cal equipment that has arrived for damage**

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		20-Oct	1.00	Check radiometers that have arrived for damage and serial numbers, record cal coefficients and date. Troy has sent email to Bill Porch regarding the cal dates of some of the radiometers.
32	EH&S	20-Oct	0.50	**Check GE Power Trac modules for wiring safety.**
				Power Trac modules in Manus are installed in plastic enclosures, wiring is not exposed.
33	Dick Pearse	22-Oct	1.00	**Assist Dick with laptop problems**
		23-Oct	2.00	Additional assistance with Dick and laptop.
34	Pickup	23-Oct	3.00	WSI cal equipment and cal equipment from Nauru picked up